REMARKS

In the Official Action, the Examiner rejected pending claims 1-21. Applicant has amended claims 1, 3, 5, 11-13, 15, and 17-19. Claims 13 and 17 are amended to correct inadvertent omissions from the original claims, and claims 1, 3, 5, 11-13, 15, 18, and 19 have been amended to clarify language. Applicant respectfully requests reconsideration of the pending claims in view of the foregoing amendments and the following remarks.

Rejections Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 17 and 19 under 35 U.S.C. § 112, second paragraph, as being indefinite. However, a previously submitted version of claim 17 inadvertently omitted originally claimed subject matter, and a typographical error of the original claim 19 specified an incorrect dependency. The current amendments to claims 17 and 19 rectify the omission and the typographical error, and are not believed to alter the scope of the originally claimed subject matter. Accordingly, Applicant respectfully requests withdrawal of the present rejection of claims 17 and 19 under 35 U.S.C. §112, second paragraph.

The Examiner also apparently rejected claims 13 and 15 under 35 U.S.C. § 112, second paragraph. However, the Examiner did not give a reason for the rejection, so Applicant respectfully traverses the rejection. If the Examiner chooses to maintain and clarify the rejection of claims 13 and 15, Applicant will respond in detail to the rejection. Nevertheless, Applicant has amended claims 13 and 15 to clarify the language, and these amendments are not believed to alter the scope of the claims nor are they made in response to the Examiner's rejection.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 1-4, 10, 13 under 35 U.S.C. § 102, as being anticipated by Pinole et al. (3,682,823). In regard to claims 1-4, 10, and 13, the Examiner specifically stated:

> Pinole discloses a process of oligomerization of alpha-olefins in the presence of a catalyst (the abstract).
>
> On the paragraph bridging columns 3 and 4, Pinole clearly disclose that Raman spectroscopy is used to detect the residual unsaturation.
>
> Regarding claims 3, 4, and 10, Pinole also disclose that according to the result of the Raman spectroscopy, the oligomerization process is adjusted by one oligomerization condition – hydrogenating these residual unsaturations in the oligomerization product (col. 4, lines 5-15).

Applicant respectfully traverses this rejection. Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). A *prima facie* case of anticipation under 35 U.S.C. § 102 requires a showing that each limitation of a claim is found in a single reference, practice or device. *In re Donohue*, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

Independent claim 1 recites a process for olefin oligomerization comprising "providing a reaction mixture comprising . . . a catalyst system suitable for the oligomerization of olefin

monomers," and "monitoring the process by using Raman spectrometry equipment." In sharp contrast, the Pinole reference discloses that an oligomer product is subjected to Raman-Laser spectroscopy (to detect residual ethylene unsaturation in the oligomer product) in a *post*-oligomerization process, after the oligomerization catalyst has been *destroyed. See* col. 3, line 50 – col. 4, line 9 (explaining that "[t]he oligomeric product mixture is generally washed with a caustic solution to *destroy* any residual catalyst") (emphasis added). The Pinole reference clearly does not disclose use of Raman spectrometry to monitor a reaction mixture having an oligomerization catalyst. *See id.* It is plain that oligomerization is complete in the oligomerization product mixture subjected to the Raman spectroscopy analysis in Pinole, and that a catalyst system suitable for the oligomerization of olefin monomers, as claimed, does not exist in the mixture of Pinole. *See id.* Accordingly, for at least this reason, independent claim 1 and its respective dependent claims 2-4 and 10 are believed to be patentable over the Pinole reference.

Independent claim 13 recites "making a first measurement of a concentration of the monomer using Raman spectrometric equipment." The Pinole reference, to the contrary, is completely devoid of the use of Raman spectrometric equipment to measure concentration of a monomer. Instead, as acknowledged by the Examiner, Pinole discloses the use of Raman-Laser spectroscopy to detect the amount of residual unsaturation in an oligomer. *See* col. 4, lines 2-6. Accordingly, for at least this reason, independent claim 13 is believed to be patentable over the Pinole reference.

Further, independent claim 13 recites "adjusting at least one oligomerization condition in response to first measurement." Thus, clearly, because the Pinole reference does not disclose

making such a first measurement, it cannot disclose making an adjustment in response to a first measurement. Accordingly, for this reason as well, independent claim 13 is believed to be patentable over the Pinole reference.

In conclusion, Applicant respectfully requests reconsideration and withdrawal of the present rejection of claims 1-4, 10, 13 under 35 U.S.C. § 102.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 14-21 under 35 U.S.C. § 103(a) as being unpatentable over Pinole (3,682,823). Additionally, the Examiner rejected claims 5-8 under 35 U.S.C. 103(a) as being unpatentable over Pinole (3,682,823) in view of Schmucker et al. (6,115,528). Further, the Examiner rejected claims 9, 11, and 12 under 35 U.S.C. 103(a) as being unpatentable over Pinole (3,682,823) in view of Tanaka et al. (5,750,817). Applicant respectfully traverses these rejections.

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination or modification. *See ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one

of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

In rejecting dependent claims 14-21 under 35 U.S.C. § 103(a), the Examiner recognized that the Pinole reference contains many deficiencies in relation to the claimed subject matter. In an effort to cure these deficiencies, Applicant notes that the Examiner has essentially taken Official Notice of facts outside of the record that the Examiner apparently believes are capable of demonstration as being "well known" in the art. However, the Examiner has not provided evidence to support these assertions. Therefore, in accordance with M.P.E.P. § 2144.03, the Applicant hereby seasonably traverses and challenges the Examiner's use of Official Notice. Specifically, should the Examiner choose to maintain the rejection, Applicant respectfully requests that the Examiner produce evidence in support of the Examiner's positions as soon as practicable during prosecution and that the Examiner add a reference to the rejection in the next Official Action. If the Examiner finds such a reference and applies it in combination with the presently cited references, Applicant further requests that the Examiner specifically identify the portion of the newly cited reference that discloses the allegedly "well known" elements of the instant claim, as discussed above, or withdraw the rejection. In addition, in rejecting claims 14-21, the Examiner did not obviate the deficiencies of the Pinole reference discussed above with regard to independent claim 13.

As for the remaining rejections under 35 U.S.C. § 103(a), the Examiner relies on the Schmucker reference in rejecting dependent claims 5-8, and on the Tanaka reference in rejecting dependent claims 9, 11, and 12. However, the Schmucker and Tanaka references do nothing to

obviate the deficiencies of the Pinole reference discussed above with regard to independent claim 1.

Therefore, in sum, all of the dependent claims are believed to be patentable for the subject matter they separately recite as well as by virtue of their dependency on their respective allowable base claims. Moreover, there is no suggestion or motivation to modify or combine the cited references in the manner asserted by the Examiner or in the manner recited in the claims. Accordingly, Applicant respectfully requests withdrawal of the Examiner's rejections and allowance of the claims.

Conclusion

In view of the remarks and amendments set forth above, Applicant respectfully requests allowance of claims 1-21. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Applicant authorizes the Commissioner to charge the appropriate fee as well as any additional fees which may be currently due to the credit card listed on the attached PTO-2038. However, if the PTO-2038 is missing, if the amount listed thereon is insufficient, or if the amount is unable to be charged to the credit card for any other reason, the Commissioner is authorized to charge Deposit Account No. 06-1315; Order No. CPCM:0008/FLE (33938US).

Respectfully submitted,

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